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Comments on Parcel G Removal Site Evaluation Work Plan

In 2012, it was discovered that Tetra Tech EC, a contractor who had worked on the Hunters Point Shipyard cleanup, had falsified and fabricated radioactivity measurements for many years. The Navy did not disclose this to the public, but instead trusted Tetra Tech to write a report on its own wrongdoing and retest a bit of the areas in question. The public only knows about this because of several Tetra Tech employee whistleblowers, and a 2014 NBC News investigation[1] based on the whistleblower reports and acquisition by NBC of the report Tetra Tech wrote.

Then in 2017, more Tetra Tech whistleblowers came out[2] saying they had been directed by "top-level on-site managers" in further improper sampling and data falsification. According to whistleblowers, this included a range of actions like:

- replacing contaminated soil samples with clean ones
- speeding up a soil conveyor belt so less radiation would be detected
- lowering the sensitivity of 'portal monitors' for outbound trucks to detect less radiation

In September 2017, the Navy prepared reports evaluating the Tetra Tech data, in response to the public outcry over these allegations, beginning with the Draft Radiological Data Evaluation Findings Report for Parcels B and G Soil. Again, the Navy did not publicly release these reports and the public only learned of them through Public Records Act requests and subsequent media stories. To this date, they are not on either the Navy's or DTSC's website for Hunters Point. In the Parcel G report, the Navy confirmed the whistleblower allegations and found even more problems. It found evidence of falsification in and recommended retesting of 49% of soil survey units in Parcel G. However, the main regulatory oversight agencies for this project — the U.S. Environmental Protection Agency (EPA), CA Department of Toxic Substances Control (DTSC), and California Department of Public Health (CDPH) — did an independent review, and in December of that year sent a letter to the Navy stating they had found much more evidence of data manipulation. According to them, only 3% of the soil survey units in Parcel G were free of

[1]https://www.nbcbayarea.com/investigations/Contractor-Submitted-False-Radiation-Data-at-Hunters-Point-279025911.html
[2]https://www.nbcbayarea.com/news/local/Hunters-Point-Whistleblowers-Expose-More-Alleged-Fraud-of-Shipyard-Cleanup--431638053.html

evidence of data fabrication and thus 97% of the soil survey units in Parcel G are suspect and should be retested.

Again, this information was not released to the public, but was only obtained through a Freedom of Information Act request by Public Employees for Environmental Responsibility (PEER).[3]

So let's review: high level managers from a Navy subcontractor are alleged to have directed subordinates to falsify data in various ways to declare areas that were contaminated to be instead clean, which would save the Navy a good deal of money. (Already this casts suspicion on the Navy: if someone hired you to clean something up, why would you risk your job by not doing it right unless you thought it's what your employer wanted?) Although the Navy was aware of the problems years ago, it took no effective action to stop it, and it continued for years more. When the issue can no longer be entirely swept under the rug, the Navy performs an assessment of the problem and misses half of the red flags. Either there are some seriously incompetent people working at the Navy, or the Navy is conducting this cleanup in bad faith.

Given this whole sorry history, the Navy is under considerable scrutiny to show that they've turned things around, that they will be fixing the mistakes of the past and proceeding with integrity. The document in question here, the Parcel G Removal Site Evaluation Work Plan, is the first step in that process. To my great dismay, the Work Plan contains numerous flaws that will result in improper sampling, declaring that which is contaminated to be instead clean, and, ultimately, a continuation of the legacy of fraud and manipulation at Hunters Point.

Navy: 'Heads I'm Right, Tails You're Wrong'

The Tetra Tech data falsification had a clear intention: to make the site seem cleaner than it is. The worker allegations (sensors desensitized, dirty samples swapped for clean ones, etc.) all point in this direction. I expected the Parcel G Work Plan to contain a full reckoning with the many paths taken to falsify data, and to recommend strategies to ascertain beyond a shadow of a doubt if there was unacceptable contamination left in place. Yet the Parcel G Work Plan seems to labor largely in service of a different conclusion: that in fact, much of the work Tetra Tech did was too good, and removed more soil than was needed!

The Navy sows doubt for inconvenient truths and manufactures assent for conclusions that suit them using words. The worker allegations "could indicate that contamination was potentially" left over, yet meanwhile "a large amount of soil (estimated 80 percent) was likely mischaracterized as contaminated."

The Work Plan draws heavily from a document that has not been made available to the public: Low-Level Radiological Waste Evaluation Associated With Various Base Realignment And Closure Activities, Argonne National Laboratory, 2012. (The Work Plan incorrectly cites it as

[3]https://www.nbcbayarea.com/investigations/EPA-Letter-Reveals-New-Problems-with-Hunters-Point-Radiation-Data-479214633.html

being released in 2011.) Unable to find this document on any of the online document repositories, I requested it from the Navy on June 19. They sent me a copy but, despite my request for them to also post it online for others to see, the document is still inaccessible to the public as of this writing.

The Argonne study is explicitly written “for the purpose of reducing the cost of low-level radiological waste (LLRW) identification and disposal” (p. 2). To identify something as contaminated and take remedial action costs the Navy money. The Navy, eager to save money and avoid accountability, wants to shift the goalposts of what actually constitutes ‘contamination’ and necessitates cleanup, so they hired Argonne to come up with a study laying out exactly how they can do that. The report speaks of “minimiz[ing] the production of LLRW soil,” as if “the volume of LLRW soil being generated at HPS” were a problem to be solved. It is a problem for the Navy, who has to pay for all this soil being disposed, but the reason there’s so much low-level radioactive waste at Hunters Point is because it is one of the most contaminated sites in the country. Hunters Point housed the ‘Little Boy’ bomb that was dropped on Hiroshima, ships radiated by the nuclear tests at Bikini Atoll, and decades of foundational nuclear research, making it a good candidate for the center of American nuclear industry in the 20th century. Of course there are going to be high volumes of radioactive soil.

The Navy request to Argonne was completely one-sided and shows the heavy bias of the Navy and suggests that Tetra Tech was not acting completely as a rogue outfit but doing what the Navy wanted. Rather than asking Argonne to identify how measurements could be biased in either direction -- i.e., understating or overstating contamination -- with an emphasis on protecting public health by avoiding missing contamination, the Navy asked for a laundry list of ways to declare soil not contaminated and reduce costs. The bias is crystal clear.

One of the methods of deception outlined in the Argonne study concerns measurements of radium 226. Ra-226 is one of the radionuclides of concern (ROCs) at Parcel G, and with a half-life of 1600 years, it certainly would be concerning if it were left on site. The Argonne study suggests that, because of the way Ra-226 has historically been measured at Hunters Point (using gamma spectroscopy), the measurements have all been biased higher than the amount of Ra-226 actually present. The argument is that the 186-keV emission line produced by Ra-226 is similar to the gamma peak of uranium 234 and thus subject to interference, meaning that elevated readings of Ra-226 could actually be a mix of Ra-226 and U-235. Either way, one would think, there is clearly radioactive contamination present and remediation is needed. Not so: the Navy has conveniently excluded U-235 from this Work Plan’s list of Radionuclides of Concern (Table 3-4), despite large amounts of it being used at Hunters Point. So, if one measures elevated levels, it doesn’t matter whether it is pure radium-226 or radium-226 and uranium-235; one doesn’t want to expose the public to one, the other, or both. This is also particularly true because the cleanup level for uranium-235 is far lower than for radium-226, so if some of the material is U-235, that is in fact more of a concern than if all of it is radium.

Another Argonne strategy that sheds additional light on this business with Ra-226 concerns the setting of background. Background radiation is the level of radioactivity that was present before the polluter began polluting; it is usually attributable to naturally occurring radionuclides or global fallout from nuclear tests. In order to know how much of a radiation measurement is attributable to the polluter (the Navy) and how much existed previously and so is not their responsibility, background measurements are crucial. Background measurements, somewhat obviously, must be taken far enough from the contaminated site that these supposedly neutral measurements aren't also contaminated. The Parcel G Work Plan claims that "The RGs [Remediation Goals] used previously are within background ranges. Therefore, soil that was considered contaminated could have been attributable to naturally occurring radioactivity or anthropogenic fallout." This statement is false. The RGs are generally above background levels.

The Argonne study lists two approaches to background. The first one is to "expand the background dataset to encompass full Ra-226 variability in all soil types being remediated". The essential claim being made here is that different soil types have different levels of naturally occurring Ra-226. The problem here is that it looks like Argonne was proposing to try to inflate background by taking samples in enough different soils as to get a higher value, which may be irrelevant to the soil at Hunters Point to which it is being compared.

What's their second approach to background?

"Implement the 1-pCi/g plus background requirement using the upper end of the background data distribution rather than the mean."

This is what I mean by shifting the goalposts. The Navy, by enacting these suggestions, is first expanding the range of what background could be, then selecting the upper end of this range to use as background (Argonne suggests the 95th percentile). In other words, inflate what's considered background as much as possible so that more of the radioactive contamination present seems like it's not the Navy's responsibility. If the Navy finds a small amount of Ra-226, it will be considered below background; if they find a high amount of Ra-226, it will be considered interference from a radionuclide (U-235) they're ignoring. This also violates the Record of Decision and the agreement with EPA, which involved using the mean background value.

Oh, and about that "1-pCi/g plus background requirement"? That's some shady agreement the Navy made with the EPA, traceable as far back as the 2006 Basewide Radiological Removal Action Memorandum (Table 1), for the Remediation Goal for Ra-226 to be set at 1 pCi/g. Per CERCLA, Remediation Goals should be taken from the EPA's risk-based Preliminary Remediation Goals (PRGs), which list the allowable residential dose of Ra-226 as 0.0018 pCi/g — that's almost 1000x safer than setting the RG at 1 pCi/g.

All that to say that the Navy seems to have its priorities mixed up in commissioning and referencing such a study from Argonne, looking for manipulations and deceptions to save them money. This is a helpful in understanding the rest of the Work Plan.

Scope of Retesting Artificially Restricted

The EPA's comments on the Tetra Tech data at Parcel G included a recommendation that 97% of the soil units be retested. For instance, of the 63 Trench Units (TUs) in the parcel, the EPA recommends retesting 59 of them. However, in the Work Plan, only 21 of the TUs are designated for Phase I Investigation (the more comprehensive level), with the remaining TUs relegated to superficial Phase II Investigation (a single borehole sample with a gamma scan of the core, nevermind that many of the ROCs are alpha- and beta-emitters, nevermind again that the gamma scan can't detect all but one of the ROCs at the Investigation Level).

Additionally, there is no mention of retesting of the Fill Units, despite the EPA's recommendation that all 107 of them be retested.

Remediation Goals Inflated Way Above Safe Levels

The remediation goals used in the Work Plan (Table 3-5) suposedly are taken from the EPA's PRGs from 1991. The EPA has since updated these numbers, making some of them hundreds of times more protective. There is no reason that current PRGs should be used; there is no logical reason to, in retesting to be performed in 2018, to be using 1991 PRGs when modern ones exist.

Additionally, the Work Plan treats the Remediation Goals "as concentrations above background" (Table 3-5, footnote a). In CERCLA, Remediation Goals are set to include background, not as increments above background. The RGs are set for Parcel G in the Record of Decision (ROD), which only lists Ra-226 as being a concentration above background. This Work Plan then takes it upon itself to update all the RGs to be concentrations above background, which is not how the CERCLA process works. You cannot amend the ROD with a footnote in a retesting plan.

Background Sampling to Be Done in Contaminated Areas

In Figure 4-1 of the Work Plan, we are shown the proposed location from which to take samples to determine background for buildings. This building, Building 401, was previously designated impacted (in the Parcel G Record of Decision, as well as in the Building 401 Final Status Survey Report). Taking background measurements from a contaminated area is just asking for inflated background numbers… which the Navy would probably like very much.

Similarly, the background measurements for soil are proposed to be taken at 4 on-site locations and one off-site location. It sounds nice to take background from somewhere off-site, until you read (in the back, in Appendix A) that they will use a 95% confidence level, effectively cutting off outliers… such as background measurements collected from offsite locations. So background will be skewed towards the background measurements taken onsite. No background

measurements should be taken onsite, from buildings or soil, because of the likelihood of the entire site being contaminated.

Most of Parcel G (Still) Untested Under This Plan

The 2004 Historical Radiological Assessment (HRA) designates sites at Hunters Point as impacted or non-impacted. The great majority were deemed non-impacted (792 of the 883 sites considered in the HRA). This 'non-impacted' status is used by later Navy documents to rationalize not testing these sites. At all. Considering that the HRA was compiled from a survey of (incomplete) historical site records and interviews with former employees, it is highly concerning that there are no measurements conducted to determine if these sites are, as claimed, completely clean and safe. Considering the numerous migration pathways through which contamination could have (and likely has) spread throughout the site, there is no basis for considering untested sites uncontaminated.

Conclusion

The Navy knows the public is watching them closely right now. At the same time, they have a demonstrable desire to save money and not pay for a huge exodus of radioactive waste from the site. In that light, the Parcel G Removal Site Evaluation Work Plan in its current form seems designed more as a PR stunt than as a good faith attempt at verifying the presence of contamination at Parcel G. That the Navy would release such a shoddy, inadequate plan is testament to continued untrustworthiness. This Work Plan needs to be completely redone, incorporating revisions based on these comments, before the cleanup proceeds.

Sincerely,

Haakon Williams